

CLAIMS

1 1. A system for testing a radio frequency (RF) device, the RF device having a body
2 and an antenna, the antenna being configured to propagate an RF signal, said system
3 comprising:

4 a coupler configured to facilitate coupling between an RF signal and an RF
5 device, said coupler comprising:

6 a conducting member having a base wall, said base wall being configured
7 to engage a portion of the body of the RF device;

8 an antenna-receiving member configured to receive at least a portion of the
9 antenna; and

10 a tuning member configured to receive at least a portion of the antenna
11 therein, said tuning member being aligned with said antenna-receiving member
12 such that at least a first portion of the antenna is receivable by said antenna-
13 receiving member and at least a second portion of the antenna is receivable by
14 said tuning member;

15 wherein resonance in a coupling coefficient of an RF signal injected into
16 said coupler via said antenna-receiving member and said conducting member is
17 tuned by said tuning member.

1 2. The system of claim 1, wherein the RF signal is injected in a first direction, and a
2 coupled signal corresponding to the injected RF signal is characterized by a second
3 direction, the first direction being substantially opposite to the second direction.

1 3. The system of claim 1, wherein a resistive load is electrically coupled between
2 said antenna-receiving member and said conducting member, said resistive load being
3 configured to increase the coupling coefficient.

1 4. The system of claim 1, wherein said antenna-receiving defines an orifice and said
2 tuning member defines a cavity, said orifice being configured to receive at least a portion
3 of the antenna therethrough, said cavity being configured to receive at least a portion of
4 the antenna therein.

1 5. The system of claim 1, wherein a resistive load is electrically coupled between
2 said antenna-receiving member and said conducting member, said resistive load being
3 configured to reduce a voltage standing wave ratio (VSWR) of said coupler.

1 6. The system of claim 1, wherein tuning of the resonance in the coupling coefficient
2 of the RF signal is further defined as damping the resonance in the coupling coefficient of
3 the RF signal by said tuning member.

1 7. The system of claim 1, further comprising:
2 test equipment electrically communicating with said coupler, said test equipment
3 being configured to determine a characteristic of the RF signal.

1 8. The system of claim 1, further comprising:
2 means for supporting said tuning member.

1 9. The system of claim 1, wherein tuning member is formed of ferrite.

1 10. The system of claim 1, wherein antenna-receiving member is formed of brass.

1 11. The system of claim 1, wherein said conductive member has a side wall, said side
2 wall extending outwardly from said base wall such that said base wall and said side wall
3 form an L-shaped configuration, and wherein engagement of the RF device with said side
4 wall tends to align the antenna with said antenna-receiving member and said tuning
5 member.

1 12. The system of claim 4, wherein said antenna-receiving member has a proximal
2 end with a contoured periphery, at least a portion of said contoured periphery being
3 configured to engage the RF device such that the antenna of the RF device is substantially
4 completely insertable within said antenna-receiving orifice.

1 13. The system of claim 4, wherein said tuning member engages a support member,
2 said support member being configured to align said antenna-receiving orifice with said
3 cavity of said tuning member.

1 14. The system of claim 4, further comprising:
2 an RF connector engaging electrically engaging said coupler, said RF connector
3 being configured as a coaxial cable connector having a pin and an exterior shield, said pin
4 electrically engaging said antenna-receiving member, said exterior shield electrically
5 engaging said conducting plane.

1 15. The system of claim 6, wherein said damping occurs at a frequency of
2 approximately 850 MHz.

1 16. The system of claim 6, wherein said support member engages said antenna-
2 receiving member such that said support member maintains a spaced arrangement of said
3 antenna-receiving member and said conducting plane.

1 17. A method for coupling an RF signal between an RF device and test equipment,
2 the RF device having a body and an antenna, the antenna being configured to propagate
3 the RF signal, said method comprising the steps of:
4 providing an RF device;
5 at least partially surrounding a first portion of the antenna of the RF device with a
6 tuning material;
7 coupling an RF signal to a second portion of the antenna, the second portion of the
8 antenna being disposed between the first portion and the RF device body.

1 18. The method of claim 17, wherein the step of coupling an RF signal to a second
2 portion of the antenna comprises the step of:
3 injecting the RF signal in a first direction such that the coupled signal
4 corresponding to the injected RF signal is characterized by a second direction, the first
5 direction being substantially opposite to the second direction.

1 19. The method of claim 17, wherein resonance in a coupling coefficient of the
2 injected RF signal is damped by the tuning material.

- 1 20. The method of claim 18, wherein the step of injecting the RF signal comprises the
- 2 step of:
 - 3 injecting the RF signal with test equipment;
 - 4 determining a characteristic of the coupled signal; and
 - 5 tuning the RF device based upon the characteristic of the coupled signal.

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